10/23/02 Substantive changes approved by the full Commission
10/31/00 Nonsubstantive changes approved by Efficiency Committee
10/31/00 Adopted by the full Commission

PEAK LOAD REDUCTION PROGRAM

LIGHT EMITTING DIODE TRAFFIC SIGNAL CONVERSION GUIDELINES

1. Program Element Summary

The Overall Program Guidelines contain general information and procedures that apply to the entire program. Consult the Overall Program Guidelines in addition to this Program Element Guideline.

Only a small percentage of California's estimated 1.8 million traffic signals use the light emitting diode (LED) technology. Yet, this technology, when compared to typical incandescent light technology, can reduce energy use per signal by an estimated 80-90 percent. One of the main barriers to more widespread implementation of the LED technology has been its high initial capital cost.

This program will provide grants to encourage the replacement of incandescent traffic signals with those using LEDs. The grants will pay for part of the material and labor costs for installing red, green, amber and pedestrian LED traffic signal modules. The amount of the grant will be based on the incentive amounts listed in Section 7.

2. Amount Allocated for Program Element

The initial Commission allocation for this program element is $10 million. Funds allocated for this program element may be increased or decreased.

3. Schedule

Awards are ongoing.

4. Definitions

a. Incentive means the portion of the project cost that will be provided as a grant to the recipient for installing the projects specified in the grant agreement.

b. Investor-owned utilities (IOU) mean Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas and Electric Company, PacifiCorp, Bear Valley Electric Service, Kirkwood Gas and Electric Company, and Sierra-Pacific Power Company. (Pacific Gas and

Electric, Southern California Edison and San Diego Gas and Electric have their own LED Rebate Program.)

c. Load factor is the estimated operating time for each type of light. For the purposes of this program, the load factors shown in Table A will be used.

Table A – Traffic Signal Load Factors

Traffic Signal Module Type	Load Factor
Red ball	59%
Red arrow	81%
Green ball	38%
Green arrow	16%
Amber ball and arrows	3%
Amber beacon	50%
Pedestrian	90%

d. Peak Electricity Demand Savings, as stated in the Overall Guidelines, is defined as follows:

$$\frac{\text{(System kWh Usage) pre retrofit} - \text{(System kWh Usage) post retrofit}}{4}$$

Where, system kWh usage equals kWh consumption of affected traffic signals during the hours of 2:00 PM to 6:00 PM on a non-holiday, summer (June through September) weekday. The kWh consumption includes the load factor for each traffic signal module type.

e. Peak period means the summer afternoon period, defined as the hours of 2:00 p.m. to 6:00 p.m. on non-holiday weekdays during the months of June through September, with typical or average operating conditions.

f. Public agency means any California city, county, federal or state government, public university and college, special district, regional planning agency, or any combination thereof formed for the joint exercise of any power.

g. Publicly owned utility means consumer-owned utilities, such as municipal utility districts, public utility districts, rural electric cooperatives, irrigation district systems, and joint powers authority that includes one or more of these agencies that owns generation or transmission facilities, or furnishes electric services over its own or its member's electric distribution system.

h. Recipient means the public agency that is awarded the grant and is responsible for meeting the grant terms and conditions.

i. Replacement means 1) the removal of existing incandescent traffic signal modules and installing LEDs, or 2) the modification of existing plans from incandescent to those using LEDs.

j. Traffic signal means any lights operating on a designated electric utility traffic control rate schedule or those that are electrically powered and are associated with directing traffic flow and operating during the peak period. Traffic signals are those associated with street intersections, cautionary beacons, freeway/highway interchanges, tollbooths and freeway on-ramps.

k. Traffic signal module means the standard 8-inch (200 mm) or 12-inch (300 mm) round traffic signal indications and pedestrian signals. They consist of the light source, lens and all parts necessary for operation and communicate movement messages to drivers through red, amber, and green colors. Arrow modules in the same colors are used to indicate turning movements. Pedestrian modules are used to convey movement information to pedestrians.

5. Eligible Applicants

The entity requesting funds must be a public agency that owns and/or operates traffic signals during the peak period.

6. Eligible Projects

a. Projects eligible for grants are as follows:

1) Replacement of incandescent traffic signal modules with those using LEDs. The replacement LED red, green, amber, and/or pedestrian traffic signal module must operate during peak periods.

2) Only the following LED traffic signal modules are eligible for funding:

a) Modules must be hard-wired (Type 1) replacements for the incandescent balls and arrows.
b) Pedestrian signals can include either the hand only conversion or the combined hand/walking person unit.
c) Modules must meet either the California Department of Transportation (Caltrans) or the Institute of Transportation Engineers (ITE) specifications.
d) Modules must not exceed the maximum power demand ranges indicated in the grant solicitation.

b. Ineligible projects

a) Upgrade of existing LED traffic signal modules to those using a more energy efficient technology
b) Purchase of extra or spare LED modules for the purpose of future replacement or installation
c) Reimbursement for LED traffic signal modules already purchased and/or installed as of the date of the award.
d) LED traffic signal conversion projects that are already funded in part or in whole by an IOU. LED traffic signal conversion projects in IOU territories will be considered if the IOU is not funding any portion of the project.

7. Type and Method of Funding

a. The program will provide incentives **up to the amount** indicated in Table B for LED traffic signal installations. The Commission's incentive can supplement incentives from **publicly owned utilities**. However, the combined incentives cannot exceed the total project cost (including materials and installation labor) for each module type. For instance, if a 12 inch red ball costs $90, including materials and installation labor, and the publicly owned utility incentive is $50, then the Commission incentive will be $40, or $10 less than the amount indicated in Table B.

Table B – LED Incentive Amounts

Module Type	Maximum Incentive Amount
Red (8" and 12 " balls and arrows)	$50.00 per module
Green (8" and 12 " balls and arrows)	$100.00 per module
Amber (8" and 12 " balls and arrows)	$50.00 per module
Pedestrian hand (non-hard wired)	$25.00 per module
Combination pedestrian hand/walking person	$70.00 per module*

*Up to $100.00 per module incentive will be provided for modules that use 60 percent less power than the power demand stated in the grant solicitation. The 60 percent reduction must be based on Caltrans or ITE test procedures as delineated in their specifications. For instance, if a standard LED module uses 10 watts, the higher efficiency module must use 4 watts or less in order to get the higher incentive.

b. The Commission may conduct a grant solicitation for eligible public agencies and will accept applications on a first-come, first-served basis up to the date specified in the solicitation, or until all funding has been allocated, or the Commission determines that there is no longer a need or interest to continue with an incentive program for LED traffic signals, whichever comes first.

c. The maximum grant amount per public agency is $3.5 million. There is no minimum grant amount.

d. The Commission may accept applications for grants on a non-competitive basis.

8. Evaluation Criteria

Projects will be initially screened for eligibility and technical accuracy only. After meeting the eligibility and technical accuracy requirements, first priority will be given to those public agencies that have certified the following: a) they will not be applying to the IOU's LED Incentive Programs for the same projects for which grant funds are being requested, b) they will withdraw their application or reservation from the IOU's LED Incentive Program if they receive a grant from the Commission program, or c) they are served by a publicly owned utility.

9. Application Process

a. Grant Request: Eligible public agencies interested in receiving funding may apply to the Commission by responding to a solicitation or on a non-competitive basis. The minimum information required from each applicant will include, but not be limited to: (1) a description of the existing incandescent traffic signal modules and the proposed LED modules; (2) detailed description of the project cost; (3) the schedule for project installation and completion; (4) documentation of utility rebate amounts, if any; (5) a copy of the plans or other documentation showing the current project installation/design, if the application involves modification of existing plans from incandescent to LEDs; and 6) the estimated peak electricity demand savings.

b. Governing Board Documentation: When the recipient is a county, city, district, or other local public body, the recipient must provide an original signed resolution (or copy with original signed certification), order, motion, or ordinance of the local governing body which by law has authority to enter into the funding award. This document must authorize the recipient to enter into the funding award and designate an authorized representative to execute all necessary agreements to implement and carry out the purposes of the award. The recipient cannot begin Commission-funded work until the resolution, order, motion, or ordinance has been submitted to the Commission and the funding award has been approved by the Committee or Commission as indicated in Section 10.

c. Loan Request: For all public agencies, except the State of California, a grant through this program may be combined with a Commission loan for the balance of the project cost.

10. Approval of Awards

The Committee will make recommendations for all grants and the Commission may approve the awards at a Commission Business Meeting.

Upon approval by the Commission a grant agreement will be generated. The grant agreement will contain work statement tasks. Failure to meet any work statement tasks within the schedule indicated in the grant agreement may result in cancellation of the award by the Commission as indicated in the Overall Program Guidelines.

11. Award Payments and Invoicing

a. Conditions for Grant Payment: The Commission will provide grants to supplement the cost of purchasing and installing eligible LED traffic signal modules as described in Section 6. The grant reimbursement will be provided at the time all the LEDs have been installed and the signals are operational. Prior to payment, the Commission reserves the right to:

1) Inspect each project

2) Verify that the total LED modules installed matches the amount and type for which payment is requested

3) Verify that the Commission grant is not used to supplement the cost of a project already funded by an IOU

4) Verify that the Commission grant and any publicly owned utility incentive does not exceed 100% of the total project cost as described in Section 7

Grant payments shall be made for eligible projects as defined in Section 6. To receive a grant payment, the recipient must submit the required documentation as described in the grant agreement. This documentation will include, at a minimum, copies of vendor/contractor invoices showing the specific quantity and cost for each traffic signal module purchased.

b. Progress Payments: There will be no progress payments made during the grant term.

c. Situations for Denial of Grant Payment Request: Grant payments, either in whole or in part, will not be made in the event of any of the following:

1) The equipment purchased does not meet the requirements specified in these Guidelines.

2) The recipient fails to provide the required documentation specified in the grant agreement for receiving payment. This documentation includes, but is not limited to, dated copies of vendor/contractor invoices showing the type and number of LED traffic signal modules purchased and their costs, dated copies of invoices for installation labor, and an updated spreadsheet showing the number and type of

LED modules installed, energy savings, energy cost savings, and project costs.

3) The recipient is requesting reimbursement for existing salaried labor used to complete project installation. The Commission's grant cannot pay for existing salaried labor but can be used to pay for unbudgeted labor, such as contractors or over-time staff, that will expedite the project installation. If using in-house labor, a copy of each employee timesheet and the hourly rate must be submitted. The timesheets must show and certify that the hours worked were above and beyond that employees normal work schedule.

4) The equipment, for which reimbursement is being requested, is funded in whole or in part by an IOU.

5) The total incentives from the Commission and the publicly owned utility exceed 100 percent of the total project cost.

6) A random audit or technical analysis conducted by the Commission, or its designated representatives, determines that the installed project does not meet the terms and conditions of the grant agreement.

12. Reports and Documentation

The recipient will be required to submit progress reports and a final report. The frequency of submittal of the progress reports will be specified in the grant agreement.At a minimum the final report will contain:

a. A summary of the pre- and post- energy use for all traffic signal intersections funded through this program

b. Two sample one-month utility bills showing the pre- and post-retrofit energy use for example intersection(s)

c. A summary of the problems encountered during project installation and post project installation

The Commission will monitor the progress of the estimated peak electricity demand savings and reserves the right to randomly audit funding awards. The Commission may meter electricity consumption and demand at certain intersections, and if so, the recipient must agree to give the Commission access to install, read, and remove electricity meters.